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EXAMINER	
SINGH, DALZID E	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,164	SPARKS ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,8 and 10-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,8 and 10-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 16-18 are objected to because of the following informalities:

Claims 16-18 depend on a cancelled claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-6, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroyanagi et al (US Patent No. 6,072,610) in view of Fee (US Patent No. 6,108,113).

Regarding claim 1, Kuroyanagi et al discloses a system for hybrid electronic/photonic switching of traffic in a node of a communications network (as shown in Fig. 1), the system comprising:

a plurality of interfaces (2a-20f), the plurality interfaces comprising:

an electronic cross-connect (EXC) or (electronic DCS) adapted to selectively map an electronic signal from a selected first one of the interfaces to a selected second one of the interfaces (as shown in Figs. 3B, 3C and 3D, Kuroyanagi et al shown that the electronic DCS (310) selectively map an electrical signal between normal condition and fault condition; see col. 2, lines 19-24 and col. 34-38; for example, if the electronic

switch (DCS) selects or maps a connection to fiber (P), then the electrical signal is selected or mapped to interface (LTE (TX)) corresponding to fiber (P)); and

a photonic cross-connect (PXC) or optical crossconnect (OCCS) adapted to selectively couple respective optical signal between each selected interface and selected ones of plurality of optical channels of the communications network (as shown in Fig. 3D, optical signal between the selected interface (for example, the selected interface (LTE (TX)) corresponding to fiber (P)) is selectively coupled to one of at least two optical channels (optical channels such as W1 or W2 or P, located on fiber span between site B and C; see col. 3, lines 65-67 to col. 4, lines 1-2, Kuroyanagi et al discloses that the optical switch selectively forms optical connections among various input and output ports).

Kuroyanagi et al shows working fiber and standby (protection) fiber which is associated with interface such as (e/o converter or o/e converter) Kuroyanagi et al differ from the claimed invention in that Kuroyanagi et al do not disclose at least one working interface and at least one protection interface, a number of the protection interfaces being selected based on a probability of failure of a working interface. Fee is cited to show such well known concept. Shown in Figs. (3B, 3C and 3D), Fee teaches the use of interface (LTE) associated with working fiber (W) and protection fiber (P). Each interface associated with the fiber (working or protection) can be indicated as working interface or protection interface. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide working and protection interfaces as taught by Fee to the system of Kuroyanagi et al. One of

ordinary skill in the art would have been motivated to do this in order to convert the signal associated with each fiber.

Regarding claim 3, as shown in the figures, Fee shows that a number of working interfaces corresponds with a number of working channels of the communications network (for example, as shown in the Figs. 3B, 3C and 3D, on site A, there are shown working interfaces (LTE (TX)) corresponding to working fibers (W1) and (W2) and protection interface (LTE (TX)) corresponding to protection fiber (P)).

Regarding claim 4, as discussed above, each working interface is adapted to translate between an electronic signal and a corresponding optical signal having a substantially fixed predetermined wavelength.

Regarding claim 5, Kuroyanagi et al discloses transmitting a predetermined wavelength as discussed above and differs from the claimed invention in that Kuroyanagi et al does not disclose that the predetermined wavelength is determined during provisioning of the interface in accordance with a design of the communications network. However, the network system, as discussed above, was design to communicate with various different sites through plurality of transmission links and interfaces. It is well known that in designing of a communication network, database of look-up table is created, containing wavelengths corresponding to different interfaces and transmission lines. Therefore, it would have been obvious to an artisan of ordinary skill at the time the invention was made to provide a predetermined wavelength of the interface during provision of the communication network. One of ordinary skill in the art would have been motivated to do such in order to set a particular wavelength to a

particular interface or transmission link and in the event that a failure occur, a different wavelength can be selected by selecting a different interface.

Regarding claim 6, as discussed above, Kuroyanagi et al discloses that the predetermined wavelength corresponds with a channel wavelength of at least one working channel of the network (as shown in the figures the transmitted wavelength corresponds to transmission lines).

Regarding claim 10, Kuroyanagi et al discloses that the protection interface is adapted to translate between an electronic signal and a corresponding optical signal having a selected wavelength.

Regarding claim 11, as discussed above, Kuroyanagi et al discloses that the wavelength is dynamically selected from a set of channel wavelengths of the network (see col. 10, lines 26-39; Fig. 24B and col. 22, lines 27-31).

Regarding claim 12, as discussed above, Kuroyanagi et al shows that the protection interface comprises either one or both of:

a wide-band optical detector adapted to detect an optical signal having a wavelength corresponding to any channel wavelength of the network (since the claim requires either one or both, this limitation is not considered); and

a laser adapted to generate an optical signal having the selected wavelength (shown in Fig. 24B, Kuroyanagi et al show transmission of wavelength, therefore, there must be laser adapted to generate such wavelength).

Regarding claim 16, the combination of Kuroyanagi et al and Fee discloses optical crossconnect and electrical crossconnect which comprises detector to detect a

failure; a selector to select protection interface; electrical crossconnect (EXC); and optical crossconnect (PXC) (see col. 8, lines 40-67 to col. 9, lines 1-39; col. 35, lines 2-60). The combination differs from the claimed invention in that the combination does not specifically disclose controller for EXC and PXC. However, it would have been obvious to an artisan of ordinary skill in the art to provide controller for controlling EXC and PXC. One of ordinary skill in the art would have been motivated to do this in order to recover failed path.

Regarding claim 17, as discussed above, Kuroyanagi et al discloses tuner adapted to tune the selected protection interface to the predetermined wavelength of the failed interface (see col. 10, lines 26-39; Fig. 24B and col. 22, lines 27-31).

Regarding claim 18, the combination of Kuroyanagi et al and Fee discloses optical crossconnect and electrical crossconnect which comprises detector to detect a failure; a selector to select protection interface; and optical crossconnect (PXC) (see col. 8, lines 40-67 to col. 9, lines 1-39; col. 35, lines 2-60). The combination differs from the claimed invention in that the combination does not specifically disclose controller for the PXC. However, it would have been obvious to an artisan of ordinary skill in the art to provide controller for controlling PXC. One of ordinary skill in the art would have been motivated to do this in order to recover failed path.

4. Claims 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroyanagi et al (US Patent No. 6,072,610) in view of Fee (US Patent No. 6,108,113) and further in view of Yin et al (US Patent no. 6,246,707).

Regarding claim 7, as discussed above and shown in Fig. 4A, Kuroyanagi et al shows laser diode (4A) for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Kuroyanagi et al as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to provide high conversion efficiency at high repetition rate and hence provide greater transmission capacity.

Regarding claim 8 and 14, as discussed above and shown in Fig. 24B, Kuroyanagi et al shows laser diode for generating an optical signal having the predetermined wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a tunable laser. However, tunable laser diode is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-65, Yin et al teach the use of tunable laser. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a tunable laser to the system of Kuroyanagi et al as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to adjust the laser to output a desired wavelength.

Regarding claim 13, as discussed above and shown in Fig. 4A, Kuroyanagi et al shows laser diode for generating an optical signal having the selected wavelength and differ from the claimed invention in that Kuroyanagi et al does not specifically disclose that the laser is a narrow-band laser. However, laser diode which generate narrow band optical signal is well known. Yin et al is cited to show such well known concept. In col. 2, lines 64-67, Yin et al teach the use of laser which generate narrow band signal. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a laser which generate narrow band (i.e., narrow band laser) to the system of Kuroyanagi et al as taught by Yin et al. One of ordinary skill in the art would have been motivated to do such in order to provide high conversion efficiency at high repetition rate and hence provide greater bandwidth.

Response to Arguments

5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
November 25, 2005
David Singh